

September 12 last year, has been described by Mr. Engler to the St. Louis Academy. While an aurora of normal type was clearly seen in the northern sky, there appeared in the south-east, about 30 to 35 deg. above the horizon two horizontal streaks of light, about 5 deg. apart, and 15 or 20 deg. in length. Their pale hazy light resembled moonlight. From the upper streak were suspended, by small cords of light, a number of balls, brighter than either of the streaks, which were continually jumping up and down in vertical lines, much like pith-balls when charged with electricity. Above the upper streak was a bright gauze space with convergent sides, seemingly composed of streamers of light, the brightness diminishing from the streak outwards. From the lower streak extended a similar mass, differing only in a greater inclination of the streamers. The balls and cords gradually disappeared first, then the streamers, then the streaks; and the whole phenomenon lasted about half an hour. No explanation is offered. It is noteworthy that on the same evening and at the same hour, a most remarkable band of white light was seen at Albany, N.Y., Utica, N.Y., Hanover, N.H., Boston, Mass., and elsewhere in the North Atlantic States, spanning the heavens from east to west near the zenith.

THE sixth part of the *Transactions* of the Cumberland Association for the Advancement of Literature and Science, is a volume of 180 pp., and comprises the annual reports of the different local societies, amalgamated under the title, with a selection of papers read before the Association and the local societies. We have already given full details of the formation and working of the Association. The report of the secretary, Mr. J. D. Kendall, F.G.S., is encouraging, showing, that though there is a slight falling off in the number of members, due to the cause already noticed, there are now 1811 on the books. The present volume of *Transactions* is one of the most valuable the Association has yet published. It is divided into two parts, the first containing the President's address and the papers read at the annual meeting, and the second consisting of papers communicated to the different societies, and recommended by the Council for publication. Among the papers are—Public water-supplies of West Cumberland, by Mr. A. Kitchin, F.C.S.; Grasses of Mid-Cumberland, by Mr. W. Hodgson; Observations on the flowering-plants of West Cumberland, by Mr. J. Adair; the lichens of Cumberland, by Rev. W. Johnston; Notes on the occurrence of the Iceland falcon in Edenside, by Mr. J. G. Goodchild, accompanied by an excellent drawing of the bird; and Physical geography of North-West Cumberland, by Mr. T. V. Holmes. The second part includes an historical sketch, "The Chaloners Lords of the Manor of St. Bees," by Mr. W. Jackson, F.S.A., and an exceedingly interesting paper on bird-life, by Dr. Chas. A. Parker. Mr. Holmes contributes notes on a submerged forest off Cardurnock, on the Solway, and on the destruction of Skinburness by the sea about the year 1305. A valuable list of West Cumberland flowering-plants and ferns, by members of the Botanical Section of the Whitehaven Society, records the observed plants of the district. This appears to be the most complete list that has yet been published, though a few errors have crept in. The concluding paper is on the distribution of the Diatomaceæ, by Mr. B. Taylor, and consists of a list of the species obtained by him in the locality.

IN reference to Mr. S. M. Baird Gemmill's letter on the Aurora (*antea*, p. 105), the writer asks us to state that the aurora was observed on May 15th (not the 18th).

THE additions to the Zoological Society's Gardens during the past week include a Sykes's Monkey (*Cercopithecus albogularis* ♂) from West Africa, presented by Mr. Ballantine Dykes; a Common Marmoset (*Haple jacchus*) from Brazil, presented by Mrs. Wingfield; a Yellow-bellied Liothrix (*Liothrix luteus*) from India, presented by Miss Mabel Crosbie; two Common Night-

ingales (*Daulias lusciniæ*), a Blackcap Warbler (*Sylvia atricapilla*), British, presented by Mr. H. Grant; a Horned Lizard (*Phrynosoma cornutum*) from Texas, presented by Mr. David Rowell; a Common Nightingale (*Daulias lusciniæ*), British, two Yellow-bellied Liothrix (*Liothrix luteus*) from India, deposited; two Wood Larks (*Alauda arboræa*), European, received in exchange; two Japanese Deer (*Cervus sika* ♂♂), two Mouflons (*Ovis musimon* ♂♂), a Cape Buffalo (*Bubalus caffer* ♂), born in the Gardens. The following insects have emerged during the past week:—Silk Moths: *Samia cecropia*, *Attacus mylitta*, *Attacus cynthia*, *Actias selene*; Butterflies: *Lycæna iolas*, *Limnitis sibylla*, *Argynnis paphia*, *Vanessa urtica*, *Papilio podalirius*; Moths: *Sphinx pinastri*, *Chærocampa elenor*, *Sesia formiciformis*, *Sesia conopiformis*, *Sesia muscæformis*, *Trochilium apiforme*, *Trochilium melanocephalum*, *Sciapteron tabaniforme*, *Callimorpha dominula*, *Odonestis potatoria*.

### OUR ASTRONOMICAL COLUMN

MASKELYNE'S VALUE OF THE SOLAR PARALLAX.—Several inquiries have been lately made with regard to the authenticity of a value of the sun's parallax, attributed in many works to Maskelyne, the former Astronomer-Royal.

This value (8".723) was deduced by Maskelyne in an application of what he calls a new method of determining the effect of parallax on transits of the inferior planets, and is given in an article which he appears to have communicated to Vince, Plumian Professor of Astronomy at Cambridge, who published it both in his large work, "A Complete System of Astronomy," and in his elementary treatise intended for the use of students in the University. We have not been able to consult the earlier editions of these works, to ascertain whether, as is probably the case, the article was published in Maskelyne's life-time, but it is found in Vol. I. of the "System of Astronomy," which appeared in 1814, and is dedicated to Maskelyne, and also in the fourth edition of the "Elements of Astronomy," Cambridge, 1816. The article is entitled "A new method of computing the effect of parallax, in accelerating or retarding the time of the beginning or end of a transit of Venus or Mercury over the sun's disc, by Nevil Maskelyne, D.D., F.R.S., and Astronomer-Royal." After explaining his method and how an approximate value may be corrected, as a numerical example he compares the duration of the transit of Venus in 1769 as observed at Wardhus and Otaheite, assuming as an approximate value of the mean horizontal parallax 8".83 (nearly that found by Du Séjour), and concludes: "Hence the mean horizontal parallax of the sun =  $8''.83 \times (1 - 0.0121) = 8''.72316$ ." In the "Elements of Astronomy" there is the additional sentence: "we assume, therefore, the mean horizontal parallax of the sun =  $8\frac{3}{4}''$ "; but this does not appear in Vince's larger work, nor is it quite clear whether it is an addition of Maskelyne's or his own.

Lalande says the first edition of Vince's "Elements of Astronomy" was published in 1790, and Vol. I. of the large work in 1797. Probably some of our readers may be able to refer to the earlier editions.

COMET 1882a (WELLS, MARCH 17).—The following ephemeris of this comet is deduced from the elements last given in this column:—

At Greenwich Midnight					
	R.A.	Decl.	Log. distance from Earth.	Log. distance from Sun.	
	h. m. s.	° ' "			
July 1	9 35 58	+ 11 57.0	0.0501	...	9.9825
3	9 50 49	11 23.2	0.0673	...	9.9205
5	10 4 21	10 50.2	0.0850	...	9.9461
7	10 16 43	10 18.2	0.1027	...	9.9697
9	10 28 2	9 47.4	0.1202	...	9.9916
11	10 38 26	9 17.9	0.1375	...	0.0120
13	10 48 1	8 49.6	0.1545	...	0.0310
15	10 56 54	+ 8 22.4	0.1711	...	0.0489

On July 1, the comet sets 1h. 44m. after the sun at Greenwich, and the theoretical intensity of light is equal to that on May 16; on July 15, it sets 1h. 50m. after the sun, with a brightness equal to that on April 19.

On June 7, Mr. Barber of Spondon, Derby, observed the comet with his 8-inch refractor, at 8h. 30m., or less than ten minutes after sunset; there was a large white disc, but no tail was visible at this time.

A SUSPECTED VARIABLE STAR.—Mr. S. M. B. Gemmill writes from Glasgow, expressing the opinion that  $\phi$  Draconis will prove to be a variable star. For some time past he has observed it to be almost equal to  $\chi$  in the same constellation, whereas Groombridge and others had given a difference of one magnitude. The "Durchmusterung" has 4.7 and 3.8 for these stars respectively, and the first Radcliffe catalogue, for which the magnitudes were very carefully estimated, has 4.4 and 3.7. He assigns a difference of half a magnitude. Mr. Gemmill states he has found a very slight fluctuation in  $\psi^1$  Draconis, which seems to be periodic. Baily, in his notes to the *British Catalogue*, says: "This star is marked as of the 7th magnitude in the *British Catalogue*; but in the original entries it is designated once as 4½, once as 3½, and once as the 5th."

THE UNIVERSITY OBSERVATORY, OXFORD.—The Savilian Professor of Astronomy, director of the University Observatory, has issued his annual report, which was presented to the Board of Visitors on the 1st inst. It is mentioned that a somewhat elaborate memoir is now printed in the *Transactions* of the Royal Astronomical Society on the application of photography to delicate celestial measurement. The inquiry into the relative motions of some forty stars in the Pleiades has been brought to a successful conclusion, the results agreeing generally with those recently deduced by M. Wolf, of the Observatory at Paris, who employed a very different instrument and method. A complete survey of the relative brightness or magnitudes of all the stars in the northern hemisphere reputed to be visible to the naked eye has been commenced, and it is hoped that before the date of the next report, all the stars brighter than the fifth magnitude, some five hundred in number, will have been measured. The report touches also upon the discordances between the observed degree of brightness of Comet 1882 *a*, with the results deduced from theory. The expenditure for the purposes of the Observatory, has, it is stated been under the amount provided by Convocation; a sum of 600*l.* per annum is available for three years from December last, and this the Savilian Professor considers will probably suffice for the future efficient maintenance of the Observatory, the only difficulty that might arise relating to necessary repairs, &c., of the present instruments, or the addition of new ones that may be needed.

### GEOGRAPHICAL NOTES

M. LESSAR's paper on his excursion from Askabad to Saraks (*Isvestia*, vol. xviii, fasc. 2) will be read with pleasure by those who are interested in the topography, inhabitants, and social conditions of this country. With regard to natural science, we notice the result of the levelling which was made along the line of the Transcaspian railway; it proved, that contrary to what was presumed, the country does not have a general slope from east to west. At the Aidin wells there are several places situated below the present level of the Caspian, and all the tract between this place and the present shore of the Caspian—M. Lessar states—cannot be regarded as the former bed of a river; it was probably the bottom of a very large gulf of the Caspian, which extended towards the east. It is most probable—he adds—that a levelling between the Tekke oasis and Khiva or Bokhara, will also show in the sand-steppes many tracts situated below the level of the Caspian, as has been found in the Sara-kamysch depression; and it will prove that the Murghal and Tejent could not flow into the Oxus, but flowed into the Caspian, much extended at that time towards the east. We notice in the same paper a remark with regard to termites; their hemispherical mounds, one to two feet in diameter, are very numerous in certain localities; numberless galleries are discovered under these mounds, which galleries are peopled with ants and with termites, about half an inch long, of an amber-colour; they cover the brushes and pieces of wood with numberless pipes in clay, and totally destroy them. The buildings of the Transcaspian railway have much to suffer from the attacks of the termites.

WE have received from Mr. Fisher Unwin several of his useful "Half-Holiday Handbooks." They are all for the districts around, and easily accessible from London. They are really handy, in paper covers, easily carried in the pocket, and well printed. Considering their low price, they contain a great deal of varied information and many useful and well-executed

illustrations. Besides the objects which attract the ordinary tourist, they give a fair amount of information concerning the natural history of the districts to which they refer, and illustrations of the principal flowering plants, and occasional geological curiosities. We have no doubt these "Handbooks" will meet with a wide sale; and we trust they will be the means of encouraging hard-worked Londoners to explore the beauties and natural productions of the interesting district around the metropolis. The districts so far included in the series are Richmond, Bromley and Keston, Kingston-on-Thames, Tunbridge Wells, Greenwich and Blackheath, Reigate, Croydon to the North Downs, Dorking. With the exception of Kingston, they have all maps and bicycle routes. As a general accompaniment to these, there is one volume devoted to geological rambles and tours, with twenty-five illustrations and sketch-maps.

"DIE Afrika-Literatur in der Zeit von 1500 bis 1750 N.Ch." is the title of a small volume by Prof. Philipp Paulitschke, published by Brockhausen and Bräuer of Vienna. It consists of the titles, with other bibliographical information, of 1212 works and papers and maps on Africa, published during the period embraced. These are arranged under five headings—General, North, West, South, and East Africa. Prefixed is a short, scholarly, and useful introduction on the growth of our knowledge of Africa from 1500 to the time of the great map reformer, D'Anville. The great utility of such a work must be obvious to all, and geographers owe a debt of gratitude to Dr. Paulitschke for the great trouble he has been at in compiling the list, involving, as it must have done, extensive research and correspondence. No doubt omissions will be found that can be supplied in subsequent editions, but the work could scarcely have been better done. We should be glad to know on what authority Dr. Paulitschke states that Lobo's "History of Ethiopia" was published at Coimbra in 1859. In the great Portuguese Bibliography there is no mention of its publication, except as embodied in Tellez's "Historia Geral" of 1660. The translation into French by Legrand was made from MS. Under North Africa is given Sir Peter Wyche's "Short Relation of the River Nile," which should have been under East Africa, as it is really only a translation of part of Lobo's narrative published by the Royal Society in 1669. But these are comparatively small matters.

DR. FRIEDRICH EMBACHER'S "Lexikon der Reisen und Entdeckungen" is a little work that will be welcome to all interested in the history of geographical discovery; it is published at Leipsic at the "Verlag des Bibliographischen Instituts." It seems to be one of a long series of reference-books ("Meyer's Fach-Lexika") relating to different subjects. Dr. Embacher's volume is neat and well printed; contains brief notices of the leading geographical explorers, from the earliest times down to the present day, including even those now living; for example, there is a long notice of Stanley, and another of Prjevalsky. The first part is followed by a sketch of the progress of exploration in each of the great divisions of the world. The work seems to us to be done with great care, and the bibliographical references will prove very useful. The only omission of importance is the name of Mr. Darwin, which, since the work includes the names of Sir J. D. Hooker, the late Mr. Belt, and even the late Dr. Leared, surely ought to have found a place.

FROM Ferdinand Hirt of Breslau, we have received a volume of "Geographische Bildertafeln," edited by Dr. Oppel of Bremen, and Dr. Ludwig of Leipsic, with the co-operation of several specialists. This is only the first part, and is devoted to general geography. It consists of a series of carefully selected and arranged pictures, illustrating everything that ought to come under the general subject, which, in the German acceptance, seems to be a very wide one. There are in all, twenty-four sheets, containing a varied selection of illustrations of such subjects as the general surface of the earth and instruments of measurement, the geological periods, geological faults, mountain types, glaciers, volcanoes and hot springs, hills and plains, islands and coasts, oceans and seas, harbours natural and artificial, rivers, navigation, charts and meteorology, woods and forests, ethnography, scenes and means of travel, the chase, and so on. The utility of such a collection of pictures is evident. The selection seems to us to be carefully made, many of the illustrations being from well-known books of travel. As a supplement to any text-book of geography, it would be of great service, and would be sure to be welcome to the pupil.